December 23, 1999

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
The Portals
445 12th Street, S.W.
Washington, DC 20554

WRITTEN EX PARTE PRESENTATION

Re: Views of Lockheed Martin Corporation; IB Docket No. 98-172

Dear Ms. Salas:

On December 16, 1999, representatives of Lockheed Martin Corporation ("Lockheed Martin") attended a meeting hosted by the FCC's International and Wireless Bureaus in which the staff requested input from the Ka-band satellite community regarding the impact of possible adjustments to the pending 18 GHz band segmentation plan. Lockheed Martin is the founding investor in the Astrolink™ System, a licensed first-round Ka-band GSO FSS system, and is an applicant in the FCC's second Ka-band satellite processing round. Accordingly, Lockheed Martin has a direct and substantial interest in the Ka-band spectrum designations under consideration by the Commission.

The FCC's original spectrum proposal designated the 18.3-18.55 GHz band to GSO FSS on a sole primary basis and the 18.55-18.8 GHz band to FS and GSO FSS on a co-primary basis.[1] The FCC requested input on three potential modifications to its original proposal: (i) flipping the GSO FSS and GSO FSS/FS spectrum designations (*i.e.*, the 18.3-18.55 GHz band would be shared and the 18.55-18.8 GHz band would be GSO FSS only); (ii) in addition to 18.3-18.55 GHz band, designating the 18.55-18.58 GHz band as shared GSO FSS/FS spectrum (a 30 MHz incursion into the sole primary GSO FSS spectrum at 18.55-18.8 GHz); and (iii) in addition to 18.3-18.55 GHz band, designating the 18.55-18.62 GHz band as shared GSO FSS/FS

[1] *See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75 25.25 GHz Frequency Bands for Broadcast Satellite Service Use,* Notice of Proposed Rulemaking, IB Docket No. 98-172 (rel. Sept. 18, 1998) at ¶ 29 ("*18 GHz NPRM*"). The sole primary GSO FSS designation in the 18.3-18.55 GHz band was intended to permit the deployment of blanket-licensed satellite user terminals in this spectrum. *Id.*, at ¶32. The Commission proposed to grandfather existing fixed services in this band. *Id.*, at ¶40.

spectrum (a 70 MHz incursion into the sole primary GSO FSS spectrum at 18.55-18.8 GHz).[2] Lockheed Martin's views concerning these possible modifications to the FCC's original 18 GHz band plan proposal are outlined below.

Lockheed Martin supports the FCC's modified proposal to flip the sole primary GSO FSS and shared GSO FSS/FS spectrum designations in the 18.3-18.55 GHz and 18.55-18.8 GHz bands. There appear to be significantly fewer FS transmitters deployed in the 18.55-18.8 GHz band, which would facilitate the deployment of blanket-licensed GSO FSS user terminals in this spectrum and generally would avoid potential FS relocation issues associated with similar GSO FSS use of the 18.3-18.55 GHz band. In addition, Lockheed Martin understands that the U.S. Government is working both internationally and domestically to relax the existing pfd limit applicable to use of the 18.6-18.8 GHz band in the United States. Lockheed Martin would encourage the FCC to continue its efforts to ensure relaxation of the pfd limit in order to permit the deployment of blanket-licensed Ka-band user terminals in the 18.55-18.8 GHz band.

However, Lockheed Martin cannot support the proposed 30 MHz and 70 MHz incursions of shared FS/GSO FSS spectrum into the modified sole primary GSO FSS spectrum designation at 18.55-18.8 GHz. Any such incursion effectively would preclude the deployment of blanket-licensed satellite user terminals in the remaining spectrum (*i.e.*, either 220 MHz or 180 MHz of GSO FSS spectrum up to 18.8 GHz) for two fundamental reasons. First, the vast majority of Ka-band satellite systems that were licensed in the first Ka-band processing round, and proposed in the second round, will utilize wideband TDM downlinks (*e.g.*, 125 MHz or 250 MHz bandwidth channels). FS transmissions in the 18.55-18.58 GHz or 18.55-18.62 GHz bands will cause substantial interference and therefore "pollute" the entire wideband satellite downlink channel with interference even if they only partially overlap.[3] Second, given the foregoing and because GSO FSS/FS sharing requires individual coordination of both types of stations, it will be impossible to deploy blanket-licensed satellite user terminals in the "remaining" sole primary GSO FSS spectrum. In other words, a 30 MHz or 70 MHz incursion into the 250 MHz sole

[2] Each of these potential modifications to the proposed 18 GHz band plan retains a GSO FSS primary designation (either on an exclusive basis or shared with the FS) in the 18.3-18.8 GHz band and, as the Commission staff present at the December 16 meeting confirmed, no adjustment to this 500 MHz block of GSO FSS downlink spectrum is contemplated. Lockheed Martin strongly supports the Commission's conclusion that the 18.3-18.8 GHz band will be designated for GSO FSS downlink operations on a primary basis, regardless of any other adjustments it may make to the 18 GHz band plan.

[3] Because Ka-band satellite earth stations receive in the 18 GHz band and transmit at 30 GHz, they cannot cause intereference into FS operations at 18 GHz but rather are the victims of interference from FS transmitters operating in shared frequency bands.

primary GSO FSS spectrum designation *precludes blanket licensing and effectively eliminates the sole primary GSO FSS spectrum designation in the remainder of the 18.55-18.8 GHz band.*[4]

As the Commission is aware, spectrum sharing between ubiquitous services is increasingly complex and difficult, if not impossible, to implement. The proposed 30 MHz or 70 MHz incursion of co-primary FS spectrum in the 18.55-18.8 GHz band effectively eliminates 250 MHz of spectrum available for GSO FSS user terminal operations, fully one-third of that originally proposed by the Commission for ubiquitous broadband satellite operations.[5] Such a reduction would substantially undercut the ability of advanced Ka-band satellite networks to meet the broadband telecommunications needs of the United States and could threaten the commercial viability of licensed and proposed systems. In an era when the Commission is actively promoting the development and deployment of broadband systems and services, it would seem incongruous to consider a proposal that would dramatically reduce the amount of spectrum available for, and therefore the capacity of, commercial satellite systems that will play a vital role in the U.S. and global broadband telecommunications infrastructure.

In this connection, Lockheed Martin notes that the FCC's modified proposal would appear to grandfather existing FS services operating in the 18.55-18.58 GHz band (primarily CARS or "wireless cable" transmitters). Given the impact of co-frequency FS operations described above, Ka-band satellite user terminal deployment presumably would be limited in geographic areas near the FS transmitters, although blanket-licensed user terminals could be deployed ubiquitously in areas free from FS interference. Lockheed Martin would also note, however, that CARS operators currently utilize analog equipment and will be required to transition to digital equipment as the video transmissions they carry move to digital. As a result, CARS and other FS services will become far more spectrally efficient and will be able to provide far greater transmission capacity in significantly less spectrum.

Accordingly, Lockheed Martin would propose that the Commission phase out grandfathered FS operations in the 18.55-18.8 GHz band after a set period of time, perhaps five years, to give FS operators sufficient time to complete their transition to digital equipment. This slight 30 MHz reduction in FS spectrum would be recouped many times over by the increased spectral efficiency gained by the transition to digital equipment, and would permit the deployment of blanket licensed satellite user terminals operating at 18.55-18.8 GHz in all areas of the United States as envisioned by the Commission. Thus, rather than preserving substantial exclusion zones in major metropolitan areas where interference from FS operations would preclude the deployment of blanket-licensed user terminals, the proposed phase-out would ensure that all U.S. consumers have access to the broadband connectivity to be provided by next-generation Ka-band satellite networks.

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[4] This conclusion is supported by substantial evidence in the record of this proceeding, including joint studies by the FS and GSO FSS communities, as well as the Commission's own findings in the *18 GHz NPRM*. *See. e.g., 18 GHz NPRM,* at ¶16-17, 43, 64-65.

[5] *See id.,* at ¶32.

In sum, Lockheed Martin supports the Commission's proposal to flip the GSO FSS sole primary and GSO FSS/FS co-primary spectrum designations in the 18.3-18.55 GHz and 18.55-18.8 GHz bands. However, Lockheed Martin cannot support either a 30 MHz or 70 MHz incursion of co-primary FS spectrum in the 18.55-18.8 GHz band because it effectively would preclude the deployment of blanket-licensed satellite user terminals in that spectrum. In addition, Lockheed Martin suggests that the Commission phase out grandfathered FS operations in the 18.55-18.58 GHz band over a period of five years so that the full benefits of GSO FSS blanket licensing can be realized in the 18.55-18.8 GHz band.

Respectfully submitted,

LOCKHEED MARTIN CORPORATION

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